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ABSTRACT

This paper reports on returned surveys of 31 (74 percent) faculty members at the Louisiana Tech University College of Education. The survey was designed to provide data related to the faculty's use and integration of technology into teacher education classes. Subjects were asked to respond to three question sets on their intended use of technology in no classes, one class, most classes, or all classes during the 1995-96 academic year. In a fourth and fifth question set, faculty were asked to select their level of interest in technology workshops to increase the use of technology in teaching and to identify the perceived obstacles that hindered faculty use of technology. A sixth question set consisted of open ended questions addressing faculty use of, interest in, and obstacles to the use of technology in teaching. Findings indicated that the faculty had a high degree of willingness to increase students' use of technology as a productivity tool in improving instruction; many more said they would use it if upgraded equipment, support personnel, and training were available. Results are being used to develop and implement a college-wide strategic plan to improve available technology and its use, overall, but especially in instruction and teacher preparation. (Contains 15 references.) (NAV)

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Integration of and Roadblocks to the Use of Technology in Teaching and Teacher Education

With the continuing advances in educational technology and the increasing availability of technology to both universities and the k-12 school setting, it is incumbent upon colleges of education to look critically at how technology is integrated into college teaching and teacher education programs. Technology is becoming a key characteristic in all levels of education and both faculty and students are increasingly expected to function within an environment generated by the Information Age. In addition, there is a growing expectation held by administrators and the general public that today's beginning teachers will be technologically literate and able to integrate technology into their instruction (Kortecamp & Croninger, 1995). The preparation of faculty and prospective teachers in the use of technology has become and will continue to be a key issue in education (Ferrante, Hayman, Carlson, & Phillips,1988).

The use of available and emerging technology by téachers to improve instruction is of particular interest as our nation moves toward the next century and the implementation of GOALS 2000. This is of specific importance in addressing Goal 4 -- The Nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to insure and prepare all American students for the next century; and Goal 6 -- Every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibility of citizenship (GOALS 2000: Educate America Act, 1994). Hill (1992) maintains that literacy can no longer be limited to one's abilities in the three R's, but rather should include the communication of ideas, as well as the abilities to deal with the complex ideas and skills represented in the media.

In order for prospective and practicing teachers to utilize available technology in their instruction, it is important for them to have both knowledge of and access to such

technology in their teacher preparation courses. Collis (1988) notes that many technology classes are reduced to having students learn about technology, including names, dates and technological vocabulary, but that practical application of technology may be missing in many programs. Students may be being taught about technology while at the same time having few opportunities to practice using these necessary skills. The Office of Technological Assessment has suggested a more appropriate balance between technological demonstration and practice (Scrogan, 1989). Although there may be noticeable variance between school districts with regard to the local availability of technology (Flaitz, 1994), it is nonetheless important for prospective and practicing teachers to utilize technology in their teaching. Failure to integrate modern and evolving technology into teacher education programs can result in classrooms where the use of educational technology will have little meaning in the lives of students. Moreover, faculty members serve as role models for prospective teachers and their use of and attitudes toward educational technology can have a significant impact on future teachers' implementation of technology in instruction (Huang, 1994). In light of these factors, having content and methods instructors who model the use of technology, integrate technology into their instruction, and require their students to do the same is vital if future educators are to be prepared to integrate technology into instruction upon employment.

Despite the apparent awareness of the importance of technology in teaching and the efforts of faculty at schools of education to provide instruction in technology, many education majors who become teachers report that they "do not feel that they are prepared to integrate technology into their instruction when they are employed in schools" (Wetzel, 1993, p.336). The editors of Electronic Learning (1991) surveyed the 15 largest schools of education and concluded that "...technology does not permeate a student's typical preservice education experience, and that is a major impediment to technology use once they become teachers." (p.21) These data can be discouraging

to those of us who struggle to model and integrate technology into our instruction while at the same time providing us with the opportunity to reflect upon the nature and scope of our practice.

A review of the literature on professors' use of technology in instruction indicates that many do not use it in any systematic or curricular way, if at all. Although many may use computers for word processing, much smaller percentages indicate required usage of technology by students or the development of technological applications for their courses (Wetzel, 1993). Many faculty hold the position that an initial technology course is vital for students while some other programs have been successful in integrating technology throughout their teacher education coursework (Parker, 1993). Some of the major reasons cited in the literature for not more fully utilizing technology in instruction include (a) lack of awareness of the instructional potential (Staman, 1990); (b) lack of enough technology in the schools for it to make a difference (Roberts & Ferris, 1993); (c) lack of training and personal expertise (Jacobson & Weller, 1988); and (d) view of technology as a time eater rather than a time saver until it has been mastered (Rossberg & Bitter, 1989). Nevertheless, the preparation of teachers for the next century who feel confident in the use of technology requires that college of education faculty increase their use of technology, provide their students with opportunities to use technology, and that faculty model the use of technology in instruction. This article reports on a survey of faculty members designed to provide data related to the faculty's use and integration of technology in teaching and teacher education classes and the development of a strategic plan to increase faculty use and integration of technology.

Method

The survey population for this study consisted of the faculty (n=42) in the College of Education at Louisiana Tech University. The college has the largest

enrollment (over 2000 students) on the Louisiana Tech campus and offers degrees from the baccalaureate to the doctorate. Faculty offices have IBM compatible computers and online access via IBM mainframe terminals. The college computer lab has both IBM and Macintosh computers as well as software. The computer lab does not have Internet connections. The survey was developed to obtain baseline data as to our present use as well as suggestions for and the obstacles to increased use of technology in our classes and throughout the college. Faculty were asked to respond to three question sets with regard to their intended use of technology in no classes, one class, most classes, or all classes during the 1995-96 academic year. In the fourth and fifth question sets, faculty were asked to select their level of interest in technology workshops to increase the use of technology in teaching and to identify the perceived obstacles which hindered faculty use of technology. The sixth question set consisted of open ended questions addressing faculty use of, interest in, and obstacles to the use of technology in teaching. Percentages, frequency distributions, and content analysis were used to analyze the data. Thirty-one of the faculty (74%) responded to the survey.

Analysis

Question Set One

The first question set addressed faculty use of technology in preparation for class. Analysis of the data revealed that a majority of the respondents reported using wordprocessing (87%) and online searches (61%) in preparation for most or all of their classes. Smaller percentages reported using spreadsheets (39%), databases (19%) and Internet or E-mail (19%).

Question Set Two

The second question set addressed faculty demonstration and use of technology in their teaching. A majority of the respondents reported using computed generated

materials (68%) in most or all of their classes. Smaller percentages reported using instructional software (45%) and the college computer lab (26%). No faculty reported using or demonstrating the Internet or E-mail in their classes.

Question Set Three

The third question set addressed faculty members' technology requirements of students in their classes. A majority of the respondents reported that they required students to present computed generated materials (65%) in most or all of their classes. Smaller percentages reported the required student use of instructional software (26%) and the college computer lab (32%). No faculty reported the required student use of the Internet or E-mail in their classes.

Question Set Four

The fourth question set addressed faculty interest in future workshops to increase the use of technology in our classes and assist in faculty development. Respondents were asked to indicate any or all of five proposed workshops in which they would like to participate. A majority of respondents indicted a desire to participate in all workshops. Results of this question set are presented in table 1.

Table 1. Faculty Interest in Development Workshops

Using Multimedia Tools for Teaching	84%
Introduction to CD-ROM Resources	90%
Creating PowerPoint Presentations	77%
Introduction to Laser Discs	58%
Using Telecommunications and E-Mail for teaching and Research	84%

Note. n=31

Question Set Five

The fifth question set addressed perceived obstacles which hinder faculty use of technology. Faculty were asked to respond to ten obstacles identified in the literature review. Results of this question set are presented in table 2.

Table 2. Perceived Obstacles to Increased Use of Technology

Lack of time	25%
Lack of software	52%
Lack of hardware	58%
Lack of keyboarding skills	13%
Lack of knowledge of available technology resources	29%
Availability of computer lab	23%
Availability of computer lab worker	45%
Using technology is frustrating to me	13%
Changes are too fast to keep current	13%
Do not think technology will enhance my subject area	16%

Note. n=31

Question Set Six

The sixth question set consisted of open-ended responses to questions regarding faculty use of, interest in, and obstacles to the use of technology in teaching. Content analysis of the data reveals that there is a wide disparity among faculty with regard to the types of statistical and wordprocessing programs available and in use. Several faculty suggested that an effort be made to coordinate programs within the college and that program upgrades be consistent within each department. Faculty again expressed interest in developmental workshops to increase productivity and use

of technology in teaching. Respondents consistently indicated that regular upgrades in both hardware and software and specific staff development activities were essential to increasing faculty use of technology in teaching. The upgrading of the college computer lab and the increased availability of support personnel were also cited as improvements which should be made.

Conclusion

The purpose of this study was to provide information to improve the integration of technology in teaching and learning in our college. The survey results indicate that the faculty has a high degree of willingness to increase students' use of technology as a productivity tool in improving instruction. Although many faculty members report the present use of some aspects of technology in their course preparation and teaching, many more appear to be willing to increase their use of technology in preparation and in teaching provided that upgraded equipment, support personnel, and training are available. The results of this study have given us insight into improvements to be made in our college regarding the availability and use of technology in instruction and teacher preparation. The results are being used to develop and implement a college-wide strategic plan that will allow us to (a) acquire additional software and hardware, (b) complete the networking of faculty and lab computers, (c) increase the availability of our computer lab, (d) provide direct connections to the Internet in all offices and the computer lab, (e) provide additional support personnel, (f) increase available training for faculty and students in technology, and (g) increase faculty awareness of the instructional uses of technology as we work to prepare technologically literate teachers. Others who would wish to increase the use of technology in instruction in their setting may wish to consider developing a similar study to begin the planning process for systematic improvement.

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